

ARAR
Guidance

2.3 STATE AIR TOXIC PROGRAMS

A number of State air pollution control agencies have adopted, or are in the process of establishing, programs to regulate what are generally referred to as "toxic air pollutants." Requirements under these programs are likely to be the most significant ARARs for Superfund activities. These programs differ from State to State in terms of the pollutants and sources regulated and the safe levels adopted.⁹ An RPM must coordinate with the appropriate State agency and with the Regional Air/Superfund Coordinator to identify these potential State ARARs.

Many States control toxic air pollutants through the imposition of technology-based standards and then determine whether residual emissions exceed State standards. Other States control toxic air pollutants by comparing emissions with acceptable ambient concentrations; that is, the concentration of the toxic pollutant is estimated, by modeling, at a receptor, usually at the fence line of the source, and compared with the "acceptable limit." The definition of an "acceptable limit" varies a good deal from State to State. Many States establish acceptable limits by applying a correction factor to occupational standards, i.e., threshold limit values (TLV). These correction factors vary from 1/10 to 1/420.

Other States regulate carcinogens using risk assessment principles. For example, a State law may require that the risk to the most exposed individual in any population exposed to a carcinogen (for an assumed 70-year lifetime) cannot exceed 1×10^{-5} excess cancer risk.

A typical State air toxics program will require a source to do the following:

- Identify pollutants of concern by comparing anticipated emissions with the State air toxics list; - Toxic Air Contaminant - MI
- Estimate emissions of toxic air pollutants using (methane \rightarrow exempt) procedures approved by the State;
- Estimate off-site concentrations, normally by air quality modeling procedures approved by EPA or the State;

⁹ Except where NESHAPs have been adopted, there are no Federal or CAA-related requirements on the State control of toxic air pollutants. EPA's role is currently to provide information, for example, through the National Air Toxics Information Clearinghouse (NATICH), the Air Toxics Control Technology Center (the CTC Hotline number is (919) 541-0800), and the Air Risk Information Support Center (the Air Risk Hotline number is (919) 541-0888). NATICH is a computerized data base that contains information from Federal, State, and local agencies, as well as research information from EPA and other organizations. The information in NATICH is organized according to agency, pollutant, and emissions source. For more information, contact the Pollutant Assessment Branch, Research Triangle Park, North Carolina, at (919) 541-0850.



CAA Amendments
1990 Title III
Air Toxics

- Compare off-site concentrations to permissible State levels; and
- Require additional controls (beyond what would otherwise be required) if a new source is likely to exceed the State limits.

2.4 COORDINATION BETWEEN CERCLA AND AIR PROGRAM OFFICES FOR REMEDIAL ACTIVITIES CONDUCTED ON SITE

Remedial Project Managers are responsible for identifying and complying with ARARs when proposed remedial actions could result in air emissions. In order to do so correctly and in a timely manner, each EPA Region should establish procedures, protocols, or memoranda of understanding that, while not recreating the administrative and procedural aspects of a permit, ensure early and continuous cooperation and coordination between the Regional Superfund and Air Program offices. An Air/Superfund coordinator from the Air Program office has been designated in each Region to facilitate cooperation and coordination between the Superfund and Air Program offices. Moreover, State Superfund and State Air Program offices may be involved where there is a State-lead action or where the State has been delegated new source air permitting authority. Coordination among all appropriate program offices should be established to ensure early involvement and identification of information requirements for expeditious remediation of particular sites. The Regional Superfund and Air Program offices should maintain their involvement in all actions.

It is expected that most remedial air field studies and engineering assessments will be performed by Superfund contractors under the direction of the RPM in coordination with the appropriate Regional and State Air Programs. The Air Program offices' experience in applying standards of control under the CAA to industrial new sources is a valuable resource for Superfund. Air Program offices can help ensure that Superfund site decisions involving air pollution issues are consistent with Air Program ARARs. The Air Program offices can also review and comment on Superfund work plans, site investigations, and cleanup studies, and can also be called upon to perform special site field evaluations during removal and pre-remedial actions. Air Program offices may also play a critical role in the selection of methodologies and assumptions for risk assessment. In some special circumstances, Air Program staff may provide assistance to Superfund contractors by consulting in areas such as air modelling, monitoring, and the use and effectiveness of air pollution control devices. Superfund staff should consult with their Air Program counterparts early in the planning process to facilitate this cooperative effort.

Another source of information regarding control technologies is the Control Technology Center in Research Triangle Park, North Carolina (Hotline numbers: (919) 541-0800 and (FTS) 629-0800). The Control Technology Center can provide information regarding types of technologies (e.g., BACT and LAER) that have been used previously to control various kinds of emissions.

Federal

EXHIBIT 2-2 (Continued)

HAZARDOUS AIR POLLUTANTS:
SOURCES AND STANDARDS^a
(NESHAPs)

Hazardous Pollutants	Sources	Standards
Benzene ^b	Fugitive leaks from equipment containing $\geq 10\%$ benzene	No detectable emissions (approx. 500 ppm.)
Arsenic ^b	Glass manufacturing	Existing: 2.5 Mg/year or 85% control New: 0.4 Mg/year or 85% control
	Primary copper	11.6 mg/m ³ particulate matter
	Arsenic trioxide and metallic arsenic production	Inspection, maintenance, and housekeeping
Radionuclides ^b	DOE facilities	25 mrem/year (whole body) ^c 75 mrem/year (any organ)
	NRC facilities	25 mrem/year (whole body) 75 mrem/year (any organ)
	Elemental phosphorus	21 Ci/year ^d
Radon 222	Uranium mines	Design and operation
	Uranium mill tailings	Design and operation
Coke oven emissions	Coke ovens (proposed 4/23/87)	Visible emissions and operating and maintenance requirements

^a 40 CFR Part 61

^b The NESHAPs for arsenic, benzene, and radionuclides are being reexamined and may be revised as a result of a July 1987 court ruling on vinyl chloride NESHAPs. The court required EPA to first consider only human health in determining a safe level of risk, and only then consider costs and technical feasibility in establishing an ample margin of safety.

^c mrem - millirem

^d Ci - curie

EXHIBIT 2-2

HAZARDOUS AIR POLLUTANTS:
SOURCES AND STANDARDS^a
(NESHAPs)

Hazardous Pollutants	Sources	Standards
Mercury	Mercury smelters, chloroalkali plants	2,300 g/day
	Sewage sludge incinerators/dryers	3,200 g/day
Asbestos	Asbestos mills	No visible emissions
	Roadways	No surfacing with asbestos
	Manufacturing	No visible emissions
	Demolition	Notification, wet and remove friable asbestos
	Spraying	Limitations on concentrations of asbestos, no visible emissions
	Fabricating	No visible emissions
	Insulation	No asbestos
	Mill waste disposal	No visible emissions
	Waste disposal--manufacturing, demolition/renovation, spraying, fabricating	No visible emissions
	Inactive waste disposal sites for mills, manufacturing, fabricating	No visible emissions, design/work practice standards
	Active waste disposal sites	No visible emissions, design/work practice standards
Beryllium	Extraction plants, ceramic plants, foundries, incinerators, rocket propellant plants, machine shops	10 g/day or 0.01 $\mu\text{g}/\text{m}^3$ ambient concentration (with 3 years of monitoring data)
	Rocket motor test sites, collection of combustion products	2 g/hr, maximum 10g/day
Vinyl chloride	Ethylene dichloride plants	10 ppm, equipment standards, work practice standards
	Vinyl chloride plants	10 ppm
	Vinyl chloride polymer plants	10 ppm

Federal

EXHIBIT 2-1

NATIONAL AMBIENT AIR QUALITY STANDARDS^a
(NAAQS)

Criteria Pollutant	Primary Standards	Averaging Time	Secondary Standards
Carbon Monoxide	9 ppm 35 ppm	8-hour ^b 1-hour ^b	None
Lead	1.5 $\mu\text{g}/\text{m}^3$	Quarterly average	Same as primary
Nitrogen dioxide	0.053 ppm	Annual (arithmetic mean)	Same as primary
Particulate Matter (PM_{10})	50 $\mu\text{g}/\text{m}^3$ 150 $\mu\text{g}/\text{m}^3$	Annual (arithmetic mean) ^c 24-hour ^d	Same as primary
Ozone	0.12 ppm	1-hour ^e	Same as primary
Sulfur oxides	0.03 ppm 0.14 ppm ---	Annual (arithmetic mean) 24-hour ^b 3-hour ^b	--- --- 0.5 ppm

^a States translate these ambient standards into source-specific emission limitations in State Implementation Plans.

^b Not to be exceeded more than once per year.

^c The standard is attained where the expected annual arithmetic mean concentration, as determined in accordance with Appendix K (52 FR 24667, July 1, 1987), is less than or equal to 50 $\mu\text{g}/\text{m}^3$.

^d The standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu\text{g}/\text{m}^3$ is equal to or less than 1.

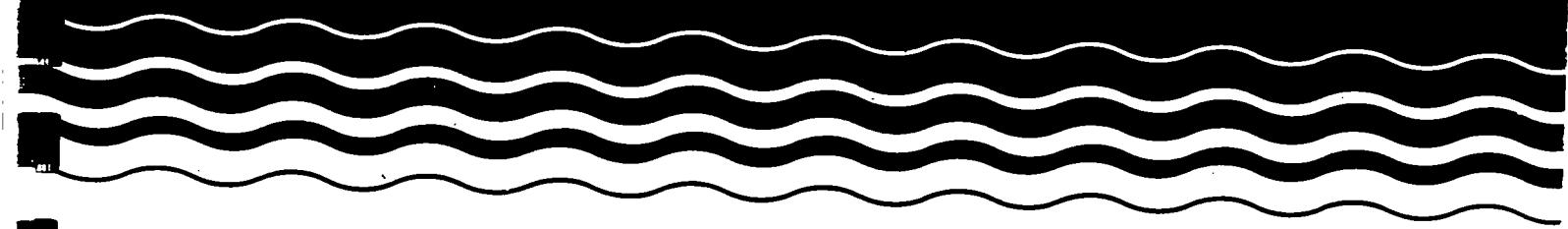
^e The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is equal to or less than 1.

Superfund

EPA

CERCLA Compliance with Other Laws Manual:

Part II. Clean Air Act and Other Environmental Statutes and State Requirements



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(88)

analyses for those constituents for as long as they are not detected in leachate.

(ii) Other constituents listed in R 299.4451, R 299.4452, and R 299.4454 on an annual basis during the active life and post-closure period. If constituents listed in R 299.4454 are not detected in leachate for 2 consecutive sampling events, the owner and operator may discontinue analyses for those constituents for as long as they are not detected in leachate.

(5) The owner and operator of a type II landfill shall inspect all leachate collection pipes on a schedule that assures the proper operation of the leachate collection system. All pipes shall be cleaned or flushed as necessary to assure proper operation.

(6) The owner and operator of a type II landfill shall ensure that all leachate that is generated by the landfill is disposed of in compliance with act 245. To do so, the owner and operator shall provide for 1 of the following:

(a) On-site treatment and discharge by a facility that is permitted pursuant to the provisions of act 245, or otherwise approved by the director.

(b) Discharge, by sewer or pipeline, to an off-site publicly owned treatment works or other facility that is permitted pursuant to the provisions of act 245 or is otherwise approved by the director.

(c) Discharge, by pump and haul, to an off-site publicly owned treatment works or other facility that is permitted pursuant to the provisions of act 245 or is otherwise approved by the director.

(7) The owner and operator of a type II landfill that discharges to an off-site publicly owned treatment works or other facility that is permitted pursuant to the provisions of act 245 shall do all of the following:

(a) Secure written permission to discharge to the facility before discharge.

(b) Meet the requirements of any applicable pretreatment ordinances.

(c) If the discharge is by pump and haul, provide, by contract or dedicated tank truck, for hauling that volume necessary to comply with subrule (1) of this rule.

(8) The owner and operator may recirculate leachate, liquid from the secondary collection system, or gas condensate back to a disposal unit if the director approves a plan for the recirculation in an operating license.

R 299.4433 Type II landfill operation; explosive gas control and monitoring.

Rule 433. (1) The owner and operator of a type II landfill shall ensure all of the following:

(a) That the concentration of methane gas generated by the facility is not more than 25% of the lower explosive limit for methane in facility structures, excluding gas control or recovery system components, and the leachate collection system.

(b) That the concentration of methane gas is not more than the lower explosive limit at or beyond the facility property boundary.

(c) That gases generated by the facility do not create a nuisance and are not otherwise in violation of the provisions of act 348 at the property boundary.

(2) The owner and operator of a type II landfill shall implement a routine methane monitoring program to ensure that the requirements of subrule (1) of this rule are met. The type and frequency of monitoring shall be based on all of the following factors:

(a) Soil conditions.

(b) The hydrogeologic conditions surrounding the facility.

(c) The hydraulic conditions surrounding the facility.

(d) The location of facility structures and property boundaries.

(3) The minimum frequency of methane monitoring shall be quarterly.

(4) If methane gas levels exceeding the limits specified in subrule (1) of this rule are detected from either an active or closed unit, the owner and operator shall do all of the following:

(a) Immediately take all necessary steps to ensure protection of human health and notify the director.

(b) Within 7 days of detection, place, in the operating record, the methane gas levels detected and a description of the steps taken to protect human health.

(c) Within 60 days of detection, implement a remediation plan for the methane gas releases, place a copy of the plan in the operating record, and notify the director that the plan has been implemented. The plan shall describe the nature and extent of the problem and the proposed remedy.

(5) The director may establish alternative schedules for demonstrating compliance pursuant to the provisions of subrule (4) of this rule.

(6) An active gas management system shall be installed at a type II landfill if necessary pursuant to the provisions of subrule (4) of this rule. An active gas management system shall do all of the following:

(a) Include a control system that includes 1 or both of the following:

(i) A system within the unit that is in compliance with the provisions of subrule (8) of this rule.

(ii) A system outside the unit that is in compliance with the provisions of subrule (9) of this rule.

(b) Include a collection system for transporting gas to a central point or points for process or disposal.

(c) Include provisions for collecting and draining gas condensate to the leachate collection and removal system.

(d) Prevent the migration of gas out of the unit.

(ie. contain
air toxic
contaminants.)

(h) "Nuisance" means conditions that unreasonably interfere with the enjoyment of life and property, such as noise, blowing debris, odors, vectors, or pest animals.

(i) "Open burning" means either of the following:

(i) A fire from which the products of combustion are emitted directly into the outer air without passing through a stack or chimney.

(ii) The combustion of solid waste without controlling combustion air to maintain adequate temperature for efficient combustion, containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion, and control of the emission of the combustion products.

(j) "Open dump" means a disposal area that is not licensed pursuant to the act and is not otherwise authorized by the director.

(k) "Operator" means the person who is in control of or responsible for the operation of a facility or part of a facility.

(l) "Owner" means the person who owns a facility or part of a facility.

(m) "Paper mill waste" means all of the following waste that is generated by pulp or paper mills:

(i) Wastewater treatment sludge.

(ii) Bark and wood residue.

(iii) Scrap paper.

(iv) Lime mud and grit.

(v) Rejects from screens, cleaners, and pulp mills.

(vi) Green liquor dregs.

(vii) Other wastes that the department determines have similar characteristics.

(n) "Pile" means any noncontainerized accumulation of solid waste or separated material that is used for treatment or storage.

(o) "Planning committee" means a committee that is established pursuant to the provisions of section 26 of the act to aid in the preparation of a county solid waste management plan.

(p) "Practical quantitation level" means the lowest level that can be reliably achieved within specified limits of precision and accuracy under routine laboratory conditions and based on quantitation, precision and accuracy, normal operation of the laboratory, and the practical need in a compliance monitoring program to have a sufficient number of laboratories available to conduct the analyses.

(q) "Preexisting unit" means any landfill unit which is or was licensed pursuant to the provisions of the act, but which does not receive waste after October 9, 1993.

(r) "Processing" means changing the physical or chemical character of solid waste, by separation, treatment, or other methods, so as to make the waste or a constituent of the waste

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MICHIGAN DEPARTMENT OF NATURAL RESOURCES

WASTE MANAGEMENT DIVISION

ACT 641 RULES

The Department of Natural Resources provides equal opportunities for employment and for access to Michigan's natural resources. Both State and Federal laws prohibit discrimination on the basis of race, color, national origin, religion, disability, age, marital status or sex under the Civil Rights Acts of 1964, as amended, MI PA 453 and MI PA 220, Title V of the Rehabilitation Act of 1973 as amended, and the Americans with Disabilities Act. If you believe that you have been discriminated against in any program, activity, or facility, or if you desire additional information, please write the Office of Human Resources, U.S. Environmental Protection Agency, Washington, D.C. 20240; or the MDNR Equal Opportunity Office, P.O. Box 30028, Lansing, MI 48909 or the Michigan Department of Civil Rights, State of Michigan, Plaza Building, 1200 6th Avenue, Detroit, MI 48826.

For information or assistance on this publication, contact Michigan Department of Natural Resources, Waste Management Division, P.O. Box 30241, Lansing, MI 48909.

(y) "Sweet condensate" means any condensate that is not a sour condensate.

(z) "Sweet crude" means any crude oil that is not a sour crude.

(aa) "Sweetening facility" means a facility or process that removes hydrogen sulfide or sulfur-containing compounds, or both, from a sour gas, sour crude oil, or sour condensate stream and converts it to sweet gas, sweet crude, or sweet condensate. The term "sweetening facility" does not include a facility or process that operates in an enclosed system and does not emit hydrogen sulfide to the outer air.

(bb) "Sweet gas" means any gas that is not a sour gas.

(cc) "Synthetic organic chemical and polymer manufacturing plant" means a stationary source where the production, as intermediates or final products, of 1 or more of the following chemicals takes place:

(i) Methyl tert-butyl ether.

(ii) Polyethylene.

(iii) Polypropylene.

(iv) Polystyrene.

(v) Synthetic organic chemicals listed in part 60.489 of the "Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry," 40 C.F.R. part 60, subpart vv, (July 1, 1984).

(dd) "Synthetic organic chemical and polymer manufacturing process unit" means all process equipment assembled to manufacture, as intermediates or final products, 1 or more of the chemicals listed in the definition of synthetic organic chemical and polymer manufacturing plant. A synthetic organic chemical and polymer manufacturing process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.

R 336.1120 Definitions; T. (4/17/92)

Rule 120. As used in these rules:

(a) "Texture coat" means a coating that is applied to a plastic part which, in its finished form, consists of discrete raised spots of the coating.

(b) "Thin particleboard" means a manufactured board which is 1/4 of an inch or less in thickness and which is made of individual wood particles that have been coated with a binder and formed into flat sheets by pressure.

(c) "Thinning tank," as it pertains to R 336.1631, means any vessel which receives resin from a reactor and to which solvents or other materials are added to thin the resin.

(d) "Tileboard" means panelling that has a colored, waterproof surface coating.

(e) "Toxic air contaminant" or "TAC" means any air contaminant for which there is no national ambient air quality standard and which is or may become harmful to public health or the environment when present in the outdoor atmosphere in sufficient quantities and duration. For the purpose of this definition, the following substances shall not be considered to be toxic air contaminants:

(i) Acetylene.

(ii) Aluminum metal dust.

(iii) Aluminum oxide (nonfibrous forms).

(iv) Ammonium sulfate.

(v) Argon.

(vi) Calcium carbonate.

(vii) Calcium hydroxide.

(viii) Calcium oxide.

(ix) Calcium silicate.

(x) Calcium sulfate.

(xi) Carbon dioxide.

(xii) Carbon monoxide.

(xiii) Cellulose.

(xiv) Coal dust.

(xv) Emery.

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- (xvi) Ethane.
- (xvii) Graphite (synthetic).
- (xviii) Grain dust.
- (xix) Helium.
- (xx) Hydrogen.
- (xxi) Iron oxide.
- (xxii) Lead.
- (xxiii) Liquified petroleum gas (l.p.g.).
- (xxiv) Methane.
- (xxv) Neon.
- (xxvi) Nitrogen.
- (xxvii) Nitrogen oxides.
- (xxviii) Nuisance particulates.
- (xxix) Oxygen.
- (xxx) Ozone.
- (xxxi) Perlite.
- (xxxii) Portland cement.
- (xxxiii) Propane.
- (xxxiv) Silicon.
- (xxxv) Starch.
- (xxxvi) Sucrose.
- (xxxvii) Sulfur dioxide.
- (xxxviii) Vegetable oil mist.
- (xxxix) Water vapor.
- (xxxx) Zinc metal dust.

(f) "Toxicological interaction" means the simultaneous exposure to 2 or more hazardous substances which will produce a toxicological response that is greater or less than their individual responses.

(g) "Transfer efficiency" means the percentage of coating solids material which leaves the coating applicator and remains on the surface of the product.

(h) "True vapor pressure" means the equilibrium partial pressure exerted by a liquid or the sum of partial pressures exerted by a mixture of liquids. For refined petroleum stock (gasolines and naphthas) and crude oil, the "true vapor pressure" may be determined in accordance with methods described in American petroleum institute bulletin 2517, second edition, evaporation loss from external floating-roof tanks, 1980. American petroleum institute bulletin 2517 is herein adopted by reference. A copy may be inspected at the Lansing office of the air quality division of the department of natural resources. A copy may be obtained from the Department of Natural Resources, P.O. Box 30028, Lansing, Michigan 48909, at a cost of \$2.25. A copy may also be obtained from the American Petroleum Institute, 1220 L Street Northwest, Washington, DC 20005, at a cost of \$2.25.

R 336.1121 Definitions; U. (4/20/89)

Rule 121. As used in these rules:

(a) "Uncontrolled emissions" means those emissions expected to occur without control equipment, unless such control equipment is, aside from air pollution control requirements, vital to production of the normal product of the process or to its normal operation. Annual uncontrolled emissions shall be based upon the maximum annually rated capacity of the process or process equipment, unless the process or process equipment is subject to legally enforceable permit conditions or orders which limit the operating rate or the hours of operation, or both. Legally enforceable permit conditions or orders on the type or amount of materials combusted or processed shall be used in determining the uncontrolled emissions rate of a process or process equipment.

(b) "Unsafe-to-monitor component" means a component which, if monitored, would expose monitoring personnel to immediate danger. This definition includes, during the period of November 1 through March 31, a component which is located outside a building and which can only be monitored by elevating the monitoring personnel more than 6 feet above ground level.

(ii) Portable facilities which will be relocated outside the nonattainment area within 18 months.

(iii) The construction phase of a major offset source or major offset modification.

(b) Emissions resulting from resource recovery facilities which use municipal solid waste to provide more than 50% of the heat input for generating steam or electricity to the extent that such emissions will not prevent reasonable further progress towards attainment of any applicable standard.

(c) Emissions resulting from proposed major offset sources or major offset modifications which are located in an area which has an accommodative state implementation plan for the applicable major nonattainment air contaminant to the extent that such emissions will not prevent reasonable further progress towards attainment of any applicable standard.

(5) The applicability of this rule to volatile organic compounds which are nonreactive in the formation of ozone is as follows:

(a) The provisions of this rule do not apply to the emission of the following volatile organic compounds:

- (i) Dichloromethane (methylene chloride).
- (ii) 1,1,1-Trichloroethane (methyl chloroform).
- (iii) Trichlorofluoromethane (CFC-11).
- (iv) Dichlorodifluoromethane (CFC-12).
- (v) Chlorodifluoromethane (CFC-22).
- (vi) Trifluoromethane (FC-23).
- (vii) Trichlorotrifluoroethane (CFC-113).
- (viii) Dichlorotetrafluoroethane (CFC-114).
- (ix) Chloropentafluoroethane (CFC-115).

(x) Any other volatile organic compound for which it can be demonstrated to the commission that such compound is nonreactive in the formation of ozone.

(b) The volatile organic compounds specified in subdivision (a) of this subrule shall not be used as an offset to allow for the construction of any major offset source or major offset modification.

(6) Processes or process equipment specified in subdivision (c) of this subrule shall meet the following provisions:

(a) The lowest emission limit that a particular process or process equipment is capable of meeting by the application of control measures that are reasonably available considering technological and economic feasibility.

(b) Compliance with the provisions of subdivision (a) of this subrule shall be deemed to be met for processes or process equipment meeting the following provisions:

(i) For processes or process equipment which may emit volatile organic compounds, the application of the best available control technology.

(ii) For processes or process equipment which may emit particulate matter, the application of the best technically feasible, practical equipment available.

(c) The provisions of this subrule shall apply to processes or process equipment meeting either of the following descriptions:

(i) A proposed particular change of a process or process equipment which is exempted by the provisions of subrule (3)(b) to (e) of this rule and which results in a significant increase in actual emissions of any nonattainment air contaminant from that process or process equipment.

(ii) A proposed particular change of a process or process equipment which does not result in a significant net emissions increase at the major offset source, but which results in a significant increase in actual emissions of any nonattainment air contaminant from that process or process equipment.

R 336.1221 Rescinded on November 14, 1990.

R 336.1230 Air toxics from new and modified sources. 4/17/92

Rule 230. (1) A person who is responsible for any proposed new or modified process or process equipment for which an application for a permit to install is required by part 2 of these rules and which emits a toxic air contaminant (TAC) shall not cause or allow the emission of the toxic air contaminant from such proposed new or modified process or process equipment in excess of each of the following:

(a) The maximum allowable emission rate based on the application of best available control technology for toxics (T-BACT) except as provided in subrule (4) of this rule.

(b) The maximum allowable emission rate which results in a predicted maximum ambient impact that is more than the initial threshold screening level or the initial risk screening level, or both. This subdivision does not apply to an air contaminant and process that are regulated by the following national emission standards for hazardous air pollutants promulgated on or before October 17, 1989, pursuant to section 112 of the clean air act, as amended, 42 U.S.C. §7401 et seq.:

(i) Subpart B - National emission standard for radon-222 emissions from underground uranium mines.

(ii) Subpart C - National emission standard for beryllium.

(iii) Subpart D - National emission standard for beryllium rocket motor firing.

(iv) Subpart E - National emission standard for mercury.

(v) Subpart F - National emission standard for vinyl chloride.

(vi) Subpart H - National emission standard for radionuclide emissions from department of energy facilities.

(vii) Subpart I - National emission standard for radionuclide emissions from facilities licensed by the nuclear regulatory commission and federal facilities not covered by subpart H.

(viii) Subpart J - National emission standard for equipment leaks (fugitive emission sources) of benzene.

(ix) Subpart K - National emission standard for radionuclide emissions from elemental phosphorous plants.

(x) Subpart L - National emission standard for benzene emissions from coke by-product recovery plants.

(xi) Subpart M - National emission standard for asbestos.

(xii) Subpart N - National emission standard for inorganic arsenic emissions from glass manufacturing plants.

(xiii) Subpart O - National emission standard for inorganic arsenic emissions from primary copper smelters.

(xiv) Subpart P - National emission standard for inorganic arsenic emissions from arsenic trioxide and metallic arsenic production facilities.

(xy) Subpart V - National emission standard for equipment leaks (fugitive emission sources).

(xvi) Subpart W - National emission standard for radon - 222 emissions from licensed uranium mill tailings.

(xvii) Subpart Y - National emission standard for benzene emissions from benzene storage vessels.

(2) The commission, within 3 months after the effective date of these rules, shall establish a scientific advisory panel consisting of at least 3 members who have expertise in 1 or more of the following areas: toxicology, epidemiology, human medicine, environmental chemistry, biology, or other related disciplines.

(a) All of the following apply to the scientific advisory panel:

(i) Nominees may be recommended by any interested party.

(ii) Membership to the scientific advisory panel shall be of a term limited by the commission.

(iii) Each member of the panel shall be reimbursed only for actual travel expenses incurred by such member in the performance of his or her duties as a member of the panel. Members shall not be compensated for their time or work on the advisory panel.

(iv) Membership may not be drawn from the commission or from state government employees associated with regulation of air pollution.

(v) Membership shall include at least 1 member who represents industry.

(3) The commission may determine, on a case-by-case basis, that the maximum allowable emission rate determined in R 336.1230(1) may not provide adequate protection of human health or the environment. In this case, the commission shall establish a maximum allowable emission rate considering all relevant scientific information, such as exposure from routes of exposure other than direct inhalation, synergistic or additive effects from other toxic air contaminants, and effects on the environment. The commission may convene the scientific advisory panel in accordance with subrule (2) of this rule. The commission recognizes that a case-by-case analysis is a more

rigorous methodology for determining what emission rate or ambient concentration will provide protection of human health and the environment.

(4) The provisions of subrule (1)(a) of this rule shall not apply to any of the following:

(a) Process or process equipment that is in compliance with all of the following:

(i) The maximum allowable emissions of each toxic air contaminant from the proposed new or modified process is 0.1 pound per hour or less for a carcinogen or 1.0 pound per hour or less for any other toxic air contaminant.

(ii) The applicable initial threshold based screening level for the toxic air contaminant is more than 200 micrograms per cubic meter.

(iii) The applicable initial risk-based screening level is more than 0.1 micrograms per cubic meter.

(b) Process or process equipment that only emits toxic air contaminants which are particulates, VOCs, or hazardous air pollutants as listed in section 112(b) of the clean air act as amended, 42 U.S.C. 1401 et seq and is in compliance with all of the following.

(i) BACT or LAER requirements for particulates and VOCs, or emission standards for hazardous air pollutants promulgated by February 28, 1991, pursuant to section 112(d) of the clean air act as amended, 42 U.S.C. 1401 et seq.

(ii) The predicted ambient impact for each toxic air contaminant is less than the IRSI and the ITSL.

(5) The emission of a carcinogen is exempt from being in compliance with the initial risk screening level contained in subrule (1)(b) of this rule if the total allowable emissions of the carcinogen from the proposed new or modified process and all existing processes at the stationary source result in a predicted ambient impact less than or equal to the secondary risk screening level.

(6) The emission of a toxic air contaminant is exempt from subrule (1)(b) of this rule if it is demonstrated, on a case-by-case basis, to the satisfaction of the commission, that the proposed new or modified process will not cause or contribute to a violation of the provisions of R 336.1901. This demonstration shall include all relevant scientific information such as:

(a) All available information on the health effects of the toxic air contaminant.

(b) The levels at which adverse health or environmental effects have occurred.

(c) Net air quality benefits which would occur as a result of replacing an existing facility.

(d) Actual exposure levels and durations.

(e) The uncertainty in data or analysis.

(f) Other supporting information requested by the commission.

The commission may convene the scientific advisory panel in accordance with subrule (2) of this rule. The commission recognizes that a case-by-case analysis is a more rigorous methodology for determining what emission rate or ambient concentration will provide protection of human health and the environment.

(7) The initial and secondary risk screening levels for a carcinogen shall be determined by any of the following:

(a) The cancer risk assessment screening methodology contained in the provisions of R 336.1231.

(b) The United States environmental protection agency guidelines for carcinogen risk assessment, United States environmental protection agency, 1986, as adopted by reference in R 336.1299.

(c) Any alternative cancer risk assessment methodology which can be demonstrated to the commission to be more appropriate based on biological grounds and which is supported by the scientific data. The commission may convene the scientific advisory panel in accordance with subrule (2) of this rule.

(8) The initial threshold screening level shall be determined by either of the following:

(a) The methodology for determining the threshold screening levels contained in the provisions of R 336.1232.

(b) Any alternative methodology to assess noncarcinogenic health effects that can be demonstrated to the commission to be more appropriate based on

toxicological grounds and that is supported by the scientific data. The commission may convene the scientific advisory panel in accordance with subrule (2) of this rule.

(9) For the purpose of subrule (1)(b) of this rule, both of the following provisions shall apply:

(a) All polychlorinated dibenzodioxins and dibenzofurans shall be considered as 1 hazardous substance, expressed as an equivalent concentration of 2,3,7,8-tetrachlorodibenzo-p-dioxin, based upon the relative potency of the isomers emitted from the process.

(b) If 2 or more hazardous substances are present and known to result in toxicological interaction, the interactive effects shall be considered in establishing initial threshold screening levels, initial risk screening levels, and secondary risk screening levels.

(10) The predicted ambient impact of each toxic air contaminant shall be determined using the maximum hourly emission rate in accordance with the provisions of R 336.1240 or R 336.1241, or both, by a screening method using the dilution matrix in table 22, or by any screening method approved by the commission. The level of detail of this ambient impact analysis shall be sufficient to reasonably ensure that all pollutants which result in an ambient concentration of more than 10% of the initial screening levels are analyzed. Intermittent emissions are those emissions which are not allowed to be emitted continuously for the entire length of time specified in the averaging time for the appropriate screening level. The ambient impact analysis for intermittent processes may be based on the average emission rate for the appropriate averaging period if the average rate is not less than 10% of the maximum hourly rate. An average rate that is less than 10% of the maximum rate may only be used if the applicant can demonstrate, to the satisfaction of the commission, that the proposed new or modified process will not cause or contribute to peak exposures which may result in a violation of the provisions of R 336.1901.

(11) For information purposes, the department of natural resources will maintain up-to-date lists of the following information and will provide the information upon request:

(a) Chemical abstract service numbers and the basis for determining the ambient levels for all toxic air contaminants referenced in subrules (11)(b) to (d) below.

(b) Initial threshold screening levels reviewed by the commission.

(c) Initial and secondary risk-based screening levels reviewed by the commission.

(d) Ambient concentrations for toxic air contaminants reviewed by the commission pursuant to the provisions of subrules (3), (6), (7), and (8) of this rule.

(e) T-BACT determinations reviewed by the department of natural resources or the commission.

(12) The initial informational list to be developed pursuant to subrule (11)(a) to (d), above, shall be developed as follows:

(a) Within 4 months of promulgation of this rule, the commission will request the science advisory panel to review a list of toxic air contaminants compiled by the air quality division of the department of natural resources.

(b) Within 8 months of promulgation of this rule, the science advisory panel shall make recommendations to the commission with respect to the toxic air contaminants to be covered by the information list.

(c) Within 3 months of receiving the recommendations of the science advisory panel as specified in subpart (b) above, the commission will act on the recommendations of the science advisory panel by approving the informational list in its entirety or by approving it with the addition, deletion, or revision of specific toxic air contaminants.

(13) The informational list may be revised from time to time as follows:

(a) The commission may convene the science advisory panel to study and make recommendations regarding the revision of the informational list. The panel shall make its recommendations to the commission within 3 months of being convened for this purpose, unless the commission grants an extension of this deadline.

(b) Upon request by the air quality division of the department of natural resources or any other person, the commission shall consider a revision to the informational list. The commission shall act on such request within 3

months of its receipt or refer the request to the science advisory panel consistent with subrule (a) of this rule.

(14) The provisions of subrule (1)(a) of this rule do not apply to process or process equipment for which a complete permit to install application was submitted by the effective date of this rule.

(15) Table 22 reads as follows:

Table 22
Dilution factor matrix

Description

Use of the dilution factor matrix requires building height, stack height, volume flow rate, and distance to nearest property line. The lower left portion of the matrix gives dilution factor ranges corresponding to ranges of stack heights.

The dilution factor matrix is based on 8-hour-worst-case meteorological conditions (2.5 meter/second wind speed, stable atmosphere) and is expressed in terms of annual values for dilution factors.

Instructions

1. Do not use this matrix if stack height (h_s) is less than building height (h_b). If h_s is more than $2.5 \times h_b$, set $h_b = h_s/2.5$.
2. Find the column for the appropriate building height, h_b .
3. Determine distance to the nearest property line.
4. If a range of values is given for initial dilution factor (dfo), perform linear interpolation according to stack height (h_s).
5. Determine the final annual dilution factor (df) from the equation

$$df = \frac{dfo}{10 \times vfr}, \text{ where } vfr = \text{volume flow rate in cubic meters per second (m}^3/\text{s)}. \quad (1 \text{ m}^3/\text{s} = 2119 \text{ cfm})$$

6. If an 8-hour dilution factor is needed, divide df (from step 5) by 18.
7. If a 24-hour dilution factor is needed, divide df (from step 5) by 10.
8. If a 1-hour dilution factor is needed, divide df (from step 5) by 75.
9. Divide the stack concentration of a toxic air contaminant by the dilution factor (df) to determine the ambient concentration.

Example

Building height = 20 feet; stack height = 30 feet; exhaust = 1000 cfm; distance to nearest property line = 100 feet

$$dfo = (45579 - 34888) \left[\frac{30 - 20}{50 - 20} \right] + 34888 = 38452 \text{ [linear interpolation to determine } dfo \text{]}$$

$$df = \frac{38452}{(10) \times \left[\frac{1000}{2119} \right]} = 8148 = \text{annual dilution factor}$$

$$8 \text{ hour dilution factor} = \frac{8148}{18} = 453$$

Distance	hg hb 10'-25' 10'									
20'	469	535								
30'	2,319	2,664								
40'	5,082	5,837	6,330							
60'	9,524-									
	13,254	15,225	16,511	17,						
80'	13,453-	28,033-								
	24,810	28,498	30,906	32,735						
100'	18,072-	34,888-								
	39,683	45,579	49,432	52,355	54,745					
150'	55,350-	57,919-	86,207-							
	90,744	104,254	113,058	119,760	125,219	129,872				
200'	88,236-	89,824-	121,462-	174,737-	212,769-					
	160,094	185,071	200,682	212,570	222,272	230,521	237,742			
250'	130,435-	184,043-	163,937-	209,788-	267,862-	332,226-				
	240,770	287,356	311,575	330,033	345,105	357,906	369,112	379,102	388,14	
≥300'	176,470-	245,905-	211,271-	263,156-	330,754-	396,306-	470,952-			
	323,206	410,116	444,820	471,180	492,667	510,964	526,963	541,225	554,119	565,931
≥500'	176,470-	568,209-	689,174-	811,884-	629,314-	734,254-	845,552-	963,035-	1,087,646-	1,219,121-
	323,206	1,064,936	1,198,605	1,270,562	1,328,551	1,377,948	1,421,087	1,459,442	1,494,284	1,526,104
≥1000'	176,470-	568,209-	689,174-	2,443,474-	2,719,387-	2,996,105-	3,275,574-	3,557,917-	3,845,365-	2,891,566-
	323,206	1,064,936	1,198,605	4,633,777	5,002,584	5,217,663	5,384,353	5,529,852	5,661,873	5,782,464
≥2000'	176,470-	568,209-	689,174-	2,443,474-	2,719,387-	9,185,548-	9,812,901-	10,432,968-	11,053,795-	11,675,423-
	323,206	1,064,936	1,198,605	4,633,777	5,002,584	16,909,983	18,690,424	20,013,342	20,945,333	21,607,606

**ACT 250 of 1965, AS AMENDED
(Tax Exemption Act)**

**ACT 348 of 1965, AS AMENDED
(Air Pollution Act)**

**and ADMINISTRATIVE RULES
FOR**

AIR POLLUTION CONTROL



PRECISION ELECTRONICS

P.O. Box 842

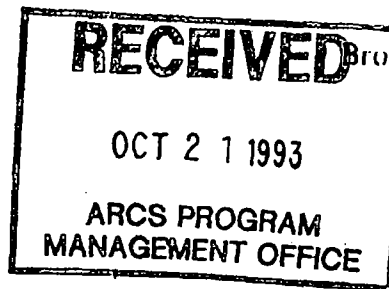
11084 Newland Street

Broomfield, Colorado 80020

(303) 466-0844

Attn: Charlene McGue

October 21, 1993



Page 1 of 4

Dear Ms. McGue,

Many thanks for sending your EDA magnetometer system to us for inspection - I thought that I'd take advantage of the miracle of FAX machinery to send you my observations, so that they might be passed around the water cooler for everyone's inspection.

I believe that at this time, your EDA gradiometer is delivering a satisfactory level of performance. There's room for just a small amount of improvement through topping up the sensor fluid levels and possibly replacing the somewhat war-torn sensor cable, but otherwise I find the repeatability of readings to be within acceptable limits, and the absolute accuracy (as verified with a test signal source) to be excellent. (Each of five test readings came within ± 1 gamma of perfection.)

Following this page are two test-run results, the first for Total Field, and the second for Gradient. Both were done with your sensor Bungy-corded to my favorite test tree, and I stood as still as possible while I gathered 20 readings of each type.

The Total Field results are flawed only by higher-than-normal statistical error values. Your unit produced error factors in the .14 to .18 range, where I'm happier when they're lower than .10 - low sensor fluid level (or the need for fresh new fluid) is usually responsible for this.

The gradient readings looked a bit better, with error factors right near the .10 level, and gradient readings which varied from the median value of 14.2 by only ± 1.9 gamma.

As I skim through the wad of data that you sent me, I see generally nice, low error factors, with just an occasional high one. These occasional high errors could be due to the presence of a lot of metallic junky clutter underfoot, or by the operator allowing the sensor to wiggle and jiggle around while the reading is being taken.

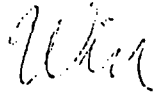
Currently I'm examining the cartridge-type battery pack - while the blue battery belt was capable of thousands of auto cycle readings, the little cartridge dropped dead after approx. 200. I'm trying a "home remedy" on it right now, which consists of deep-draining the pack with a resistor load, followed by a long, slow recharge. This procedure often restores the operating capacity to these battery packs - if it doesn't do the trick, we'll need to replace the cells within the pack.

Page 2 of 4

As far as costs of doing this stuff goes, we're looking at somewhere between \$150 and \$250 to fix up the sensor (new fluid and cable), examine the interior of the console including the test & possible replacement of the little Lithium "memory" battery that lives inside, and check out and adjust the battery charger. If we need to replace the batteries within the cartridge, then we'll wind up toward the high end of that range - if the old cells revive properly, then we'll be at the low end. (Return shipping, of course, is additional, and can be charged to WW's Federal Express number.)

Let me know if you'd like me to press onward with the maintenance work - if you want to send me your heroic thoughts through the fax machine, it's best to call ahead, because the fax machine is usually turned off.

Best Regards and All That Stuff,



Winfield Kindel

Total field test, with sensor
mounted to a tree trunk.

Page 3 of 4

LHA OMNI-IV Tie-line MAG Ser #255219
TOTAL FIELD DATA (uncorrected)
Date: 21 OCT 93
Operator: 3000
Reference field: 54000.0
Datum subtracted: 54000.0
Records: 20
Bat: 17.3 Volt Lithium: 3.50 Volt
Last time update: 10/21 11:21:00
Start of print: 10/21 11:33:43

#1	-262.1	.14	0.0	11:23:02	88
#2	-262.1	.16	0.0	11:23:17	88
#3	-261.8	.16	0.0	11:23:23	88
#4	-261.6	.15	0.0	11:23:29	88
#5	-261.8	.17	0.0	11:23:35	88
#6	-261.6	.16	0.0	11:23:41	88
#7	-261.7	.16	0.0	11:23:48	88
#8	-261.4	.15	0.0	11:23:53	88
#9	-261.8	.16	0.0	11:24:00	88
#10	-261.9	.15	0.0	11:24:05	88
#11	-262.1	.16	0.0	11:24:10	88
#12	-261.9	.15	0.0	11:24:16	88
#13	-262.3	.15	0.0	11:24:21	88
#14	-261.5	.16	0.0	11:24:27	88
#15	-261.8	.15	0.0	11:24:32	88
#16	-261.9	.17	0.0	11:24:38	88
#17	-261.8	.18	0.0	11:24:44	88
#18	-261.7	.16	0.0	11:24:49	88
#19	-262.3	.16	0.0	11:24:55	88
#20	-262.0	.15	0.0	11:25:00	88

These total field values
are looking pretty reasonable,
though they could probably be
improved just a tad with
some sensor maintenance.

END

These error values are a bit
higher than is desirable, probably
due to the need for sensor
maintenance (fluid refill, possible
new cable).

Gradient reading test,
same tree trunk.

Page 4 of 4

FDA OMNI-IV Tie-line MAG Scr #255219
TOTAL FIELD DATA (uncorrected)
S GRADIENT
Date: 21 OCT 93
Operator: 5000
Reference field: 54000.0
Datum subtracted: 53000.0
Records: 20
Bat: 16.7 Volt Lithium: 3.50 Volt
Last time update: 0/8: 0:7>:00
Start of print: 10/21 12:28:22

#1	-141.4 .09	0.0 12:21:10 88
	14.2	
#2	-143.1 .11	0.0 12:21:31 88
	13.7	
#3	-141.9 .10	0.0 12:21:42 88
	14.1	
#4	-141.4 .10	0.0 12:21:53 88
	14.5	
#5	-141.3 .10	0.0 12:22:04 88
	14.4	
#6	-141.3 .09	0.0 12:22:12 88
	14.3	
#7	-141.6 .10	0.0 12:22:21 88
	14.9	
#8	-141.0 .10	0.0 12:22:27 88
	13.6	
#9	-141.0 .10	0.0 12:22:34 88
	13.7	
#10	-141.2 .10	0.0 12:22:42 88
	14.1	
#11	-141.3 .11	0.0 12:22:49 88
	13.6	
#12	-141.4 .11	0.0 12:22:56 88
	13.7	
#13	-141.0 .10	0.0 12:23:02 88
	13.4	
#14	-140.8 .10	0.0 12:23:09 88
	13.3 -low	
#15	-141.1 .11	0.0 12:23:19 88
	13.5	
#16	-152.2 .10	0.0 12:23:26 88
	14.0	
#17	-141.5 .10	0.0 12:23:32 88
	14.6	
#18	-141.7 .11	0.0 12:23:38 88
	15.1 -high	
#19	-141.3 .10	0.0 12:23:45 88
	14.2	
#20	-141.3 .12	0.0 12:23:50 88
	14.4	

→ "Decay" and "Sensor" values
look good all the way through.

Gradient readings varied
from 13.3 to 15.1 with
sensor completely stationary.
This isn't terrible, but could
probably be improved by making
the sensor happy again.

↑ ————— these error factors look better
than the total-field-only values.



Date: _____

Client: _____

Project No.: _____

Methane - nuisance - anything that interferes with the enjoyment of life. Act 641 -

Air Regulations - p. 1-18

~~Toxic Air~~

Toxic Air contaminant -
need permit.

— Permit to install / Permit to operate
→ usually need a permit but
because it's superfund, we
don't have to

→ need to be in compliance with the
substantiative requirements
of what a permit would
require.

Determination of BACT for
contaminants,

100 tons - or more

~~state~~ regs probably don't apply

Federal requirements may kick
in if Benzene present



Date: _____

Client: _____

Project No.: _____

[illegible]